Neutrino Factory

- **Accelerator Complex**
  - Proton Driver
    - Front-end
    - Final Acceleration
  - Target, Capture and Decay
    - Target Module
    - CaptureSolenoid
    - Shielding
    - Decay
    - Hardware and Services
  - Muon Front-end
    - Buncher lattice design
    - Phase-rotation lattice design
    - Cooling lattice design
    - Hardware and Services
  - Muon Acceleration
    - Linac
    - RLA1
    - RLA2
    - Transfer line from RLA2 to FFAG
    - FFAG
  - Transfer lines from FFAG to Decay Rings
    - Decay Ring 1 mu+ transfer line
    - Decay Ring 1 mu- transfer line
    - Decay Ring 2 mu+ transfer line
    - Decay Ring 2 mu- transfer line
    - Hardware and Services
  - Muon Decay Rings
    - Ring 1
    - Ring 2
    - Hardware and Services
- **Detector**

Ion Source

LEBT

RFQ

MEBT

Low-energy Acceleration
- Option 1 - DTL+Side coupled Linac
- Option 2 - CH-Structure + spoke cavities

Superconducting Linac
- Cryomodule 1
- Cryomodule 2
- Cryomodule 3
- Achromat
  - Dipole
  - Beam dumps
- Abort line

Front-end

Hardware and Services
- RF Power
  - RF Power Source
  - RF Distribution
  - LLRF
- Magnet Power
  - Power Supplies
  - Cables
- Vacuum Equipment
  - Pumps and controllers
  - Beam pipe
- Cryogenics
- Beam Diagnostics
- Controls
- Health and Safety
- Mechanical components, Survey & Alignment

Buildings, Tunnels and infrastructure
- Main Buildings and tunnels
- Supplementary buildings and tunnels
- HVAC
- Water
- Electrical

Final Acceleration

- RCS 1
  - Injection System
    - Matching Section
    - Kicker Module
    - Septum Module
  - Lattice Cell
  - Extraction System
    - Kicker Module
    - Septum Module
    - Matching Section
  - Abort line and dump
  - Hardware and Services
- Transfer line from RCS 1 to RCS 2
  - Lattice design
  - Hardware and Services
- RCS 2
  - Injection System
    - Matching Section
    - Kicker Module
    - Septum Module
  - Lattice Cell
  - Extraction System
    - Kicker Module
    - Septum Module
    - Matching Section
  - Abort line and dump
  - Hardware and Services
- Transfer line from RCS 2 to final focus
  - Lattice design
  - Hardware and Services
- Final Focus
  - Final focus lattice design
  - Hardware and Services

Target Module

- **Target Module**
  - Mercury flow loop
    - Beam dump
  - Hardware and Services
    - Hot cells
    - Remote handling system
    - Controls
    - Health and Safety
    - Mechanical components, Survey & Alignment
    - Buildings, Tunnels and infrastructure
      - Supplementary buildings and tunnels
      - HVAC for activated air
      - Water
      - Electrical

CaptureSolenoid

- **CaptureSolenoid**
  - Superconducting Magnet
    - Coils
    - Cryostat and vacuum vessel
  - Copper magnet
    - Coils
    - Vacuum vessel
    - Water cooling
  - Hardware and Services
    - Magnet Power
      - Power Supplies
      - Cables
    - Vacuum Equipment
      - Pumps and controllers
      - Beam pipe
    - Cryogenics
      - Helium Load
      - Quench protection
    - Diagnostics
    - Controls
    - Health and Safety
    - Mechanical components, Survey & Alignment
    - Buildings, Tunnels and infrastructure
      - Supplementary buildings and tunnels
      - HVAC
      - Water
      - Electrical

Shielding
- Water cooled shielding
  - Heat exchangers
  - Water leads
- Concrete shielding

Decay 📎
- Beamline from capture solenoid
- Proton chicane
  - Absorbers
- Beamline to buncher

Hardware and Services
- RF Power
  - RF Power Source
  - RF Distribution
  - LLRF
- Magnet Power
  - Power Supplies
  - Cables
- Hot cells
- Remote handling system
- Vacuum Equipment
  - Pumps and controllers
  - Beam pipe
- Cryogenics
- Beam Diagnostics
- Controls
- Health and Safety
- Mechanical components, Survey & Alignment 📎
- Buildings, Tunnels and infrastructure
  - Main Buildings and tunnels 📎
  - Supplementary buildings and tunnels 📎
  - HVAC for activated air
  - Water
  - Electrical

Muon Front-end

- Buncher lattice design
- Phase-rotation lattice design
- Cooling lattice design
- Hardware and Services
  - RF Power
    - RF Power Source
    - RF Distribution
    - LLRF
  - Magnet Power
    - Power Supplies
    - Cables
  - Vacuum Equipment
    - Pumps and controllers
    - Beam pipe
  - Cryogenics
  - Beam Diagnostics
  - Controls
  - Health and Safety
  - Mechanical components, Survey & Alignment
  - Buildings, Tunnels and infrastructure
    - Main Buildings and tunnels
    - Supplementary buildings and tunnels
    - HVAC
    - Water
    - Electrical

- **Linac** 📎
  - Cryomodule 1
  - Cryomodule 2
  - Abort system + dump?
  - Hardware and Services
    - RF Power
      - RF Power Source
      - RF Distribution
      - LLRF
    - Magnet Power
      - Power Supplies
      - Cables
    - Vacuum Equipment
      - Pumps and controllers
      - Beam pipe
    - Cryogenics
    - Beam Diagnostics
    - Controls
    - Health and Safety
    - Mechanical components, Survey & Alignment 📎
    - Buildings, Tunnels and infrastructure
      - Main Buildings and tunnels 📎
      - Supplementary buildings and tunnels 📎
      - HVAC
      - Water
      - Electrical

RLA1

- Injection chicane
  - Kicker Module
  - Septum Module
  - Lattice design
- Linac lattice
- Switchyard1
- Droplet arc 1
- Switchyard 2
- Droplet arc 2
- Droplet arc 3
- Droplet arc 4
- Extraction system?
- Abort system + dump?
- Hardware and Services
  - RF Power
    - RF Power Source
    - RF Distribution
    - LLRF
  - Magnet Power
    - Power Supplies
    - Cables
  - Vacuum Equipment
    - Pumps and controllers
    - Beam pipe
  - Cryogenics
  - Beam Diagnostics
  - Controls
  - Health and Safety
  - Mechanical components, Survey & Alignment
  - Buildings, Tunnels and infrastructure
    - Main Buildings and tunnels
    - Supplementary buildings and tunnels
    - HVAC
    - Water
    - Electrical

RLA2

- Injection chicane
  - Kicker Module
  - Septum Module
  - Lattice design
- Linac lattice
- Switchyard1
- Droplet arc 1
- Switchyard 2
- Droplet arc 2
- Droplet arc 3
- Droplet arc 4
- Extraction system?
- Abort system + dump?
- Hardware and Services
  - RF Power
    - RF Power Source
    - RF Distribution
    - LLRF
  - Magnet Power
    - Power Supplies
    - Cables
  - Vacuum Equipment
    - Pumps and controllers
    - Beam pipe
  - Cryogenics
  - Beam Diagnostics
  - Controls
  - Health and Safety
  - Mechanical components, Survey & Alignment
  - Buildings, Tunnels and infrastructure
    - Main Buildings and tunnels
    - Supplementary buildings and tunnels
    - HVAC
    - Water
    - Electrical

Transfer line from RLA2 to FFAG

- mu- lattice design
- mu+ lattice design
- Hardware and Services
  - RF Power
    - RF Power Source
    - RF Distribution
    - LLRF
  - Magnet Power
    - Power Supplies
    - Cables
  - Vacuum Equipment
    - Pumps and controllers
    - Beam pipe
  - Cryogenics
  - Beam Diagnostics
  - Controls
  - Health and Safety
  - Mechanical components, Survey & Alignment
  - Buildings, Tunnels and infrastructure
    - Main Buildings and tunnels
    - Supplementary buildings and tunnels
    - HVAC
    - Water
    - Electrical

FFAG

- Injection system
  - Matching Section
  - Kicker Module
  - Septum Module

- Arc lattice
- Abort system + dump?
- Extraction system
  - Kicker Module
  - Septum Module
  - Matching Section

- Hardware and Services
  - RF Power
    - RF Power Source
    - RF Distribution
    - LLRF
  - Magnet Power
    - Power Supplies
    - Cables
  - Vacuum Equipment
    - Pumps and controllers
    - Beam pipe
  - Cryogenics
  - Beam Diagnostics
  - Controls
  - Health and Safety
  - Mechanical components, Survey & Alignment

  - Buildings, Tunnels and infrastructure
    - Main Buildings and tunnels
    - Supplementary buildings and tunnels
    - HVAC
    - Water
    - Electrical

Transfer lines from FFAG to Decay Rings

- Decay Ring 1 mu+ transfer line
- Decay Ring 1 mu- transfer line
- Decay Ring 2 mu+ transfer line
- Decay Ring 2 mu- transfer line
- Hardware and Services
  - RF Power
    - RF Power Source
    - RF Distribution
    - LLRF
  - Magnet Power
    - Power Supplies
    - Cables
  - Vacuum Equipment
    - Pumps and controllers
    - Beam pipe
  - Cryogenics
  - Beam Diagnostics
  - Controls
  - Health and Safety
  - Mechanical components, Survey & Alignment
  - Buildings, Tunnels and infrastructure
    - Main Buildings and tunnels
    - Supplementary buildings and tunnels
    - HVAC
    - Water
    - Electrical

Muon Decay Rings

- **Ring 1**
  - Injection system
    - Matching Section
    - Kicker Module
    - Septum Module
  - Arc lattice
  - Straight lattice
  - Energy/polarization monitor
  - Abort system + dump?
- **Ring 2**
  - Injection system
    - Matching Section
    - Kicker Module
    - Septum Module
  - Arc lattice
  - Straight lattice
  - Energy/polarization monitor
  - Abort system + dump?
- **Hardware and Services**
  - RF Power
    - RF Power Source
    - RF Distribution
    - LLRF
  - Magnet Power
    - Power Supplies
    - Cables
  - Vacuum Equipment
    - Pumps and controllers
    - Beam pipe
  - Cryogenics
  - Beam Diagnostics
  - Controls
  - Health and Safety
  - Mechanical components, Survey & Alignment
  - Buildings, Tunnels and infrastructure
    - Main Buildings and tunnels
    - Supplementary buildings and tunnels
    - HVAC
    - Water
    - Electrical